

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:

a semiconductor substrate; and

a plurality of semiconductor elements, each of which has a collector layer, a base layer, and an emitter layer formed in said semiconductor substrate respectively, said base layer and said emitter layer being separated from each other between a plurality of said semiconductor elements, each of a plurality of said semiconductor elements having a first base electrode connected to said base layer and an emitter electrode connected to said emitter layer;

a common base wiring for connecting said first base electrodes of a plurality of said semiconductor elements to each other commonly; and

a common emitter wiring for connecting said emitter electrodes of a plurality of semiconductor elements to each other commonly;

wherein said first base electrode of each of a plurality of said semiconductor elements is connected to said base layer separated from an end of an emitter junction formed by said emitter layer and said base layer.

2. The semiconductor device according to claim 1;

wherein said semiconductor device further has a second base electrode formed on part of said base layer adjacent to

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said emitter junction of each of a plurality of said semiconductor elements.

3. The semiconductor device according to claim 1;

wherein said semiconductor device further has another electrode formed with the same material as that of said emitter electrode so as to be disposed on said base layer via a semiconductor layer whose material is the same as that of said emitter layer, said another electrode being positioned between said first base electrode and said second base electrode of each of a plurality of said semiconductor elements.

4. The semiconductor device according to claim 1;

wherein said base layer of each of a plurality of said semiconductor elements is formed like a finger extended in parallel to each other.

5. The semiconductor device according to claim 1;

wherein said emitter layer is formed on part of said base layer in a mesa pattern and said first base electrode is connected to another portion of said base layer, on which said mesa pattern emitter layer is not formed.

6. The semiconductor device according to claim 2;

wherein said emitter layer is formed on part of said base layer in a mesa pattern and said first base electrode is connected to another portion of said base layer, on which said mesa pattern emitter layer is not formed.

7. The semiconductor device according to claim 5;

wherein said base layer is formed in a mesa pattern so as to come into contact with said collector layer and form a collector junction thereon.

8. The semiconductor device according to any of claims 1 to 7;

wherein said semiconductor substrate is made of a compound semiconductor material and said semiconductor element is comprised of a hetero-junction bipolar transistor.

9. A semiconductor device, comprising:

a semiconductor substrate made of a compound semiconductor material;

a plurality of hetero-junction bipolar transistor type semiconductor elements, each of which having a collector layer, a base layer, and an emitter layer formed in said semiconductor substrate respectively, said base layers of a plurality of said semiconductor elements being formed like a plurality of base fingers extended independently of each other, each of said base finger layers forming an emitter junction with said emitter layer formed on part of itself and having a first base electrode formed separately from said emitter junction, and said emitter layer having an emitter electrode connected thereto;

a common base wiring for connecting said first base electrodes of a plurality of said semiconductor elements commonly to each other electrically; and

a common emitter wiring for connecting emitter electrodes of a plurality of said semiconductor elements commonly to each other electrically.

10. The semiconductor device according to claim 9;

wherein said base finger layer has a second base electrode formed closer to said emitter junction than said first base electrode.

11. The semiconductor device according to claim 10;

wherein said first and second base electrodes of each of a plurality of said semiconductor elements are made of the same material.

12. The semiconductor device according to claim 10;

wherein said base finger layer between said first and second base electrodes functions as a base resistor.

13. The semiconductor device according to claim 9;

wherein said base layer is formed on said collector layer in a mesa pattern and said emitter layer is formed on said base layer in a mesa pattern.

14. The semiconductor device according to claim 10;

wherein said base layer is formed on said collector layer in a mesa pattern and said emitter layer is formed on said base layer in a mesa pattern.

15. The semiconductor device according to claim 10;
wherein a plurality of capacity elements are formed on
said semiconductor substrate in correspondence to said second
base electrode respectively; and

a plurality of said capacity elements are connected to
said second base electrically.

16. A method for fabricating a hetero-junction bipolar
transistor type semiconductor device, comprising the steps of:

preparing a semiconductor substrate in which a collector
layer, a base layer, and an emitter layer are formed
sequentially;

forming a first conductive layer on the main surface of
said emitter layer;

patterning said first conductive layer, thereby forming
an emitter electrode and forming a dummy electrode so as to be
separated from said emitter electrode;

removing said emitter layer by using said emitter
electrode and said dummy electrode as a mask, thereby exposing
part of said base layer; and

forming a second conductive layer serving as a base
electrode on a part of said exposed base layer by using said
emitter electrode and said dummy electrode as a mask.

17. A method for fabricating a hetero-junction bipolar
transistor type semiconductor device, comprising the steps of:

preparing a semiconductor substrate in which a collector layer, a base layer, and an emitter layer are formed sequentially;

removing a part of said emitter layer, thereby exposing a part of said base layer;

forming a photo-resist mask for exposing a part of said base layer on said base layer from which said emitter layer is removed; and

forming a second conductive layer serving as a base electrode by using said photo-resist mask as a mask.